DOCKETED	
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Description:	This section describes the potential effects the Project's construction and operation may have on soil resources at and near the Project site.
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4.11 Soils

This section describes the potential effects the Project's construction and operation may have on soil resources at and near the Project site. The information presented is based on site-specific geotechnical evaluations and readily available resources provided online. Construction of the proposed Project involves site grading, earthwork, and trenching to prepare the land for installation of BESS-related infrastructure, access roads, walls, and stormwater management areas.

Several geotechnical evaluations have been performed on or in the immediate vicinity of the Project site. Most recently, a site-specific geotechnical exploration has been performed within the Project boundary to characterize the site-specific surface and subsurface conditions and a report was prepared to document results (see Section 4.4, Geologic Hazards, and Appendix 4.4A of this application). The exploration consisted of evaluation and analysis of the proposed grading plan, a review of existing data gathered from previous geotechnical evaluations for the site and immediate surrounding area, as well as a supplementary geotechnical evaluation involving excavation, sampling, logging, laboratory analyses of the surface and subsurface characteristics.

The following sections address potential construction and operation impacts to surficial soils.

4.11.1 Affected Environment

A description of the surficial soils within the proposed Project site was developed using the Natural Resources Conservation Service (NRCS) Web Soil Survey for Orange County and Part of Riverside County, California (NRCS 2023). Descriptions of the soil map units were developed from the soil survey information and the NRCS Official Soil Series Descriptions database.

The NRCS Web Soil Survey identifies soil map units for the proposed Project site, and also includes soil map unit characteristics for the area that may potentially be affected by the construction and operation of the facility. The proposed Project boundaries in relation to the soil map units are shown in Figure 4.11.1. Table 4.11-1 summarizes the depth, texture, drainage, permeability, run-off, and other characteristics of the NRCS soil map units found at the Project site/in the vicinity.

Table 4.11-1. NRCS Soil Map Unit Descriptions

Map Unit	Description	
101	**Alo clay, 15 to 30 percent slopes**	
	Landform:	Ridges
	Parent material:	Residuum weathered from calcareous sandstone or shale
	Typical profile:	Clay over bedrock
	Depths:	22 to 26 inches to paralithic bedrock
	Drainage:	Well drained
	Permeability:	Very low to moderately high
	Run-off class:	Very high
	Capability class:	4e (non-irrigated)[1]
	Taxonomic class:	Fine, smectitic, thermic Aridic Haploxererts

Table 4.11-1. NRCS Soil Map Unit Descriptions

Map Unit	Description	
102	**Alo clay, 30 to 50 percent slopes**	
	Landform:	Hills
	Parent material:	Residuum weathered from sandstone and shale
	Typical profile:	Clay to bedrock
	Depths:	20 to 30 inches to paralithic bedrock
	Drainage:	Well drained
	Permeability:	Very low to moderately high
	Run-off class:	High
	Capability class:	6e (non-irrigated)[1]
	Taxonomic class:	Fine, smectitic, thermic Aridic Haploxererts
128	**Bosanko clay, 30 to 50 percent slopes**	
	Landform:	Hills
	Parent material:	Residuum weathered from granite
	Typical profile:	Clay to bedrock
	Depths:	22 to 32 inches to paralithic bedrock
	Drainage:	Well drained
	Permeability:	Moderately low
	Run-off class:	Very high
	Capability class:	6e (irrigated), 6e (non-irrigated)
	Taxonomic class:	Fine, smectitic, thermic Aridic Haploxererts
131	**Botella loam, 2 to 9 percent slopes**	
	Landform:	Alluvial fans
	Parent material:	Alluvium derived from sedimentary rock
	Typical profile:	Loam to silty clay loam to clay loam
	Depths:	More than 80 inches
	Drainage:	Well drained
	Permeability:	Moderately high
	Run-off class:	Medium
	Capability class:	2e (irrigated), 3e (non-irrigated)
	Taxonomic class:	Fine-loamy, mixed, superactive, thermic Pachic Argixerolls
147	**Corralitos loamy sand, moderately fine substratum**	
	Landform:	Alluvial fans
	Parent material:	Alluvium derived from mixed
	Typical profile:	Loamy sand over silt loam over stratified sand to fine sand to loamy sand
	Depths:	More than 80 inches to restrictive feature
	Drainage:	Moderately well drained
	Permeability:	Moderately low to moderately high
	Run-off class:	Negligible
	Capability class:	3s (irrigated), 3e (non-irrigated)
	Taxonomic class:	Mixed, thermic Typic Xeropsamments

Table 4.11-1. NRCS Soil Map Unit Descriptions

Map Unit	Description	
207	**Sorrento loam, 2 to 9 percent slopes**	
	Landform:	Alluvial fans
	Parent material:	Alluvium derived from sedimentary rock
	Typical profile:	Loam over silty clay loam over sandy loam
	Depths:	More than 80 inches to restrictive feature
	Drainage:	Well drained
	Permeability:	Moderately high
	Run-off class:	Medium
	Capability class:	3e (non-irrigated)[1]
	Taxonomic class:	Fine-loamy, mixed, superactive, thermic Calcic Haploxerolls
208	**Sorrento clay loam, 0 to 2 percent slopes**	
	Landform:	Flood plains, alluvial fans
	Parent material:	Alluvium derived from sedimentary rock
	Typical profile:	Clay loam to silty clay loam to stratified loamy fine sand to silt loam
	Depths:	More than 80 inches
	Drainage:	Well drained
	Permeability:	Moderately high
	Run-off class:	Low
	Capability class:	1 (irrigated), 3c (non-irrigated)
	Taxonomic class:	Fine-loamy, mixed, superactive, thermic Calcic Haploxerolls

Note:
[1] The capability class was not specified for irrigated soils, only for non-irrigated.

4.11.1.1 Agricultural Use

Based on a review of historical Google Earth aerial imagery, a portion of the Project site appears to have been previously used for agricultural use (orchards), however, the site is now vacant except for a community garden and associated structures. According to the Department of California's Important Farmland Map, the Project site is designated as grazing land and other land (DOC 2022).

As identified by the NRCS Web Soil Survey, soils within the Sorrento loam (207), Sorrento clay loam (208), Botella loam (131), and Corralitos loamy sand (147) map units are classified with a land capability class of 3 when non-irrigated. This would indicate that the soil has "severe limitations that restrict the choice of plants or that require special conservation practices, or both". The 101 Alo clay is designated as class 4 when non-irrigated, signifying that the soil has "very severe limitations that restrict the choice of plants or that require very careful management, or both". The Alo clay (102) and Bosanko clay (128) are both designated as class 6 soils which have limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat. The Calleguas clay loam (134) is designated as class 7 making them unsuitable for cultivation and also restricted to grazing, forestland, or wildlife habitat uses.

4.11.1.2 Wetlands

An aquatic resources delineation was conducted and an associated letter report was prepared to (1) evaluate the presence and extent of aquatic resources that may be subject to the jurisdiction of the United Stated Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW), (2) quantify impacts to aquatic resources that would result from implementation of the Project site, and (3) provide a discussion of potential water resource permits required for construction of the Project.

Oso Creek is located in the Project vicinity to the east of the Project site; however, the Project has been designed to fully avoid impacts to Oso Creek and associated riparian vegetation. Additional details related to wetlands can be found in Section 4.2, Biological Resources, of this application.

4.11.1.3 NRCS Soil Map Units

As shown in Table 4.11-1 above, the Project site is associated with eleven soil map units: Alo clay, 15 to 30 percent slopes (101), Alo clay, 30 to 50 percent slopes (102), Bosanko clay, 30 to 50 percent slopes (128), Botella loam, 2 to 9 percent slopes (131), Corralitos loamy sand, moderately fine substratum (147), Sorrento loam, 2 to 9 percent slopes (207), and Sorrento clay loam, 0 to 2 percent slopes (208).

4.11.1.4 Potential for Soil Loss and Erosion

Soil loss and erosion potential are greatly affected by the presence of vegetation, slope grades, soil composition and gradation, and weather patterns. Regions with sparse to no vegetation exhibit erosion more readily than areas with grasses, shrubbery, and other plants as they help in slowing the overland flow and holding the soil together. Areas with steeper slopes typically experience higher rates of erosion and soil loss than level slopes due to the higher flow velocity at which the stormwater run-off will travel.

In general, the Project site is a relatively flat abandoned alluvial floodplain that gently slopes along the lower portion of a west ascending hillside. Little vegetation exists around the Project site, apart from Oso Creek adjacent to the site which is dense with vegetation and tree coverage.

Although the proposed site is flat, construction will include paved and gravel finished grades that will not be susceptible to erosion. Unpaved areas will be graded and/or revegetated to mitigate erosion potential, and the Project has been designed to appropriately control stormwater runoff in accordance with state and local requirements.

4.11.1.5 Other Significant Soil Characteristics

Other significant soil characteristics that could affect the Project site include shrink-swell potential, liquefaction risk, the potential for shallow groundwater, organic soils potential, and the risk of soil contamination.

4.11.1.5.1 Expansive Soils

Expansive soils have the potential to shrink and swell with variations in saturation, which could cause ground instability in the form of differential settlement. Expansive soils are typically clay-rich or clay-dominant soils. Table 18-1-B of the 1994 Uniform Building Code (UBC) (International Code Council 1994) describes the standards for classifying expansive soils based on expansion index, determined using ASTM D4829.

Based on previous Expansion Index (EI) testing by Terracon in 2021, the soil corresponded to “Low” and “Medium” expansion potential.

4.11.1.5.2 Liquefaction Risk

Liquefaction is a seismic phenomenon in which the strength and stiffness of a typically loose, cohesionless (i.e., sand), saturated soil is reduced by earthquake shaking or other rapid loading/high-intensity ground motion.

Studies indicate that dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential as while saturated, loose near surface cohesionless soils exhibit the highest liquefaction potential.

The site is located within a State of California Seismic Hazard Zone for liquefaction potential (California Geological Service 2017). A preliminary liquefaction analysis was performed for the site in accordance with the DMG Special Publication 117 and was based on soil data from the borings B-2, B-3, B-7, and B-15. Based on calculation results, seismically induced settlement of saturated and unsaturated sands was found to occur in one of the four borings (B-2). Settlement at the location of boring B-2 is estimated to be approximately ½ inch or less.

4.11.1.5.3 Potential for Shallow Groundwater

The presence of groundwater at the site was evaluated as part of the geotechnical evaluation performed. The results from the geotechnical evaluation reveal that groundwater is not expected to significantly impact the proposed grading and development of the subject site. However, the depth to groundwater is anticipated to limit the potential options for mitigation of creek migration and slope stability issues on the east side of the development area.

Groundwater was encountered in borings ranging in depth from approximately 47 to 70 feet below existing grade. Historic high groundwater is estimated at five feet below grade within the development area.

4.11.1.5.4 Potential for Organic Soils

Generally, alluvial fans are not associated with organic soils. However, some of the geological materials identified in the site-specific study was found to contain some organic materials. Specifically, the relatively thin layer of topsoil/colluvium and the Quaternary alluvial deposits were found to contain scattered roots and organics.

4.11.1.5.5 Potential for Soil Contamination

The State Water Resources Control Board (SWRCB) GeoTracker database (SWRCB 2023) was searched for evidence of contamination within the vicinity of the Project site. Several LUST cleanup sites and cleanup program sites were identified within 1 mile of the Project site, all of which have been completed, and the case for each site is closed.

All cut soil that is not reused on site will be tested and disposed of properly. All fill soil brought to the site will be sourced from non-contaminated supplies.

4.11.2 Environmental Analysis

The following sections describe the potential environmental effects on soils near the Project site during the construction and operation of the proposed Project.

4.11.2.1 Significance Criteria

The potential for impacts to soil resources and their uses (such as agriculture) were evaluated using the criteria described in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (sections 15000-15387, Title 14, California Code of Regulations, Chapter 3). A project would have a significant environmental impact in terms of soils if it would do the following:

- Involve other changes in the existing environment which, because of their location or nature, could result in the conversion of farmland to nonagricultural use.
- Have a substantial adverse effect on state or federally protected wetlands.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (International Code Council 1994), creating substantial direct or indirect risks to life or property.

The following subsections describe the anticipated environmental impacts on agricultural production and soils during Project construction and operation.

4.11.2.2 Farmland Conversion

The Project will not cause land-use changes resulting in the long-term conversion of farmland. The impacts of farmland conversion are considered less than significant. Refer to Section 4.6, Land Use, for further information.

4.11.2.3 Jurisdictional Wetlands

The Project has been designed to avoid cut or fill within or near jurisdictional wetlands. Refer to Section 4.2, Biological Resources, for further information on jurisdictional wetlands.

4.11.2.4 Soil Erosion During Construction

Possible impacts on soil resources during project construction can include an increase in soil erosion due to both water and wind. Soil erosion can cause the loss of topsoil and can impact the amount of sediment received by nearby bodies of water. The magnitude of construction impacts on soil resources depends on the soil erodibility, construction methods and schedule, and construction proximity to nearby sensitive receptors.

All applicable federal, state, and local requirements and best management practices (BMPs) will be incorporated into the construction activities for the Project site. Beginning work on the Project site will involve preparing the land for installation of the BESS-related infrastructure, access driveways, and temporary construction staging areas. The construction contractor will be required to incorporate BMPs consistent with the City zoning ordinance and with guidelines provided in the California Stormwater Quality Association's Construction BMP Handbook (CASQA 2019), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Prior to initial construction mobilization, pre-construction surveys will be performed, and sediment and erosion controls will be installed in accordance with state and City guidelines. Stabilized construction entrances and exits will be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation will be consistent with state and City BMPs and the South Coast Air Quality Management District Rule 403: Fugitive Dust (SCAQMD 2005). Site preparation will involve the removal and proper disposal of existing

debris that would unduly interfere with project construction or the health and safety of on-site personnel. Dust-minimizing techniques will be employed, such as placement of wind control fencing, application of water, and application of dust suppressants. Conventional grading will be performed throughout the Project site but minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, will be used to even the ground surface and compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Soil movement from grading will be balanced on the site. However, Class II road base will be imported to create necessary compaction under the equipment, as determined by geotechnical testing and Project specifications.

For the duration of construction, BMP will be implemented following a site-specific stormwater pollution prevention plan (SWPPP) and the project will comply with the South Coast Air Quality Management District Rule 403: Fugitive Dust. Site monitoring will involve inspections to ensure that the BMPs in the SWPPP are properly maintained and dust control is implemented. Therefore, impacts related to erosion can be mitigated to less than significant.

4.11.2.5 Other Significant Soil Properties

As described in Section 4.11.1.5, the soil units within the proposed site boundary are expected to:

- Have expansive potential.
- Possibly be susceptible to liquefaction.
- Have shallow groundwater.
- Have scattered roots at and near the surface.
- Be free of contamination.

Overall, the project's site-specific geotechnical investigation determined the site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the findings and recommendations presented in the geotechnical engineering report are incorporated into project design and construction. The project will be required to be designed and constructed meet the seismic requirements of the most recent version of the California Building Code (CBC). The project's ancillary features (tanks, utility towers, etc.) will also be designed and constructed in accordance with their respective design standards consistent with the standard of practice. Impacts will be less than significant with mitigation. See Section 4.4, Geological Hazards and Resources, for additional information.

4.11.2.6 Compaction During Construction and Operation

Construction of the project and the use of heavy equipment around the site will result in soil compaction. Compacting the soil will increase the soil density, as well as reducing the ability of the soil to absorb precipitation. Surface water run-off, erosion, and sedimentation could increase as a result. The use of BMPs during the construction phase, following the SWPPP guidelines, will mitigate the effects of soil compaction. Therefore, impacts related to compaction during construction are considered less than significant.

The operation of the project is not expected to cause compaction-related impacts on the soil. Routine vehicle traffic will be limited to designated roads, and standard operational activities will not involve disruption of the soil. Therefore, impacts on soil from project operations are expected to be less than significant.

4.11.2.7 Effects of Emissions of Soil-Vegetation Systems

Emissions from a generating facility could adversely affect soil vegetation systems. Operation of a BESS does not generate emissions. No impacts are expected to occur. Additional discussion regarding impacts to biological resources in the area can be found in Section 4.2, Biological Resources, and additional discussion regarding air quality impacts can be found in Section 4.1, Air Quality.

4.11.3 Cumulative Effects

A cumulative impact refers to a proposed Project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code §21083; Title 14, California Code of Regulations, §15064[h], 15065[c], 15130, and 15355).

Risks related to soils are typically localized in nature because they tend to be related to on-site conditions or conditions caused by a project's construction. Cumulative projects that would have the potential to be considered in a cumulative context with the proposed project's incremental contribution, and that are included in the analysis of cumulative impacts relative to soils, are identified in Table 4-1 and Figure 4-1. Cumulative projects were chosen based on proximity to the proposed project. Other projects include residential, commercial, and industrial development. The majority of the cumulative projects are similar to the proposed project regarding construction and operational activities. These selection factors are appropriate in the context of soils cumulative impacts because generally there needs to be a direct nexus and similar soil conditions for a synergistic impact to occur, such as site modifications at nearby projects combining to destabilize soils. Currently, there is not a known existing significant cumulative impact related to soils within this geographic scope.

Additionally, on-site soils are located on fairly level slopes, which generally limits erosion potential because runoff across flat surfaces does not have a substantially high velocity. Although construction activities have the potential to result in erosion on the project site, adherence to the recommendations in the geotechnical report and other grading and building requirements will mitigate erosion impacts to less-than-significant levels. Other cumulative scenario projects would be required to adhere to similar requirements, thereby minimizing cumulative scenario erosion impacts. Specifically, all planned projects in the vicinity of the proposed project are subject to environmental review and would be required to conform to the City of San Juan Capistrano General Plan and Building Code. With implementation of mitigation measures and other grading and building requirements, the proposed project would not contribute to cumulative impacts for soils because the proposed project and other cumulative projects in the area would be required to demonstrate compliance with local, state, and federal building and safety standards. Impacts of the proposed project would be cumulatively considerable if the project, in combination with related projects, would result in significant cumulative impacts. However, the effects of the cumulative projects are not of a nature to cause cumulatively significant effects from soils impacts, because such impacts are site-specific and would only have the potential to combine with impacts of the proposed project if they occurred in the same location. As a result, with implementation of mitigation, cumulative impacts related to soils would be less than significant.

4.11.4 Mitigation Measures

The following mitigation measures will reduce potential impacts related to soils to less than significant during construction and operation of the proposed Project:

- Verify the recommendations provided in the geotechnical report are followed during the construction of the proposed project.
- Develop and implement a SWPPP that follow BMPs to mitigate water and wind erosion.

4.11.5 Laws, Ordinances, Regulations, and Standards

Federal, state, county, and local Laws, Ordinances, Regulations, and Standards (LORS) applicable to soils are discussed and summarized in Table 4.11-2.

Table 4.11-2. Laws, Ordinances, Regulations, and Standards

LORS	Requirements/ Applicability	Administering Agency	Application for Certification Section Explaining Conformance
Federal			
CWA/Water Pollution Control Act. 1972, amended by Water Quality Act of 1987 P.L. 100-4	Regulates stormwater and non-stormwater discharges from construction and industrial activities	RWQCB – San Diego Region (9), SWRCB	4.11.2.4
NRCS (1983), National Engineering Handbook, Sections 2 and 3	Standards for soil conservation (estimating runoff volume/peak discharge and sedimentation)	NRCS	4.11.2.4
State			
Porter-Cologne Water Quality Control Act	Regulates discharges of waste to state waters and land	RWQCB – San Diego Region (9), SWRCB	4.11.2.4
Table 18-1-B of the Uniform Building Code (International Code Council, 1994)	Sets standards for defining expansive soils	California Building Standards Commission	4.11.2.5
Local			
San Juan Capistrano Municipal Code	Standards for grading and water quality, including permit requirements	City of San Juan Capistrano	4.11.2.4, 4.11.2.5, 4.11.2.6

4.11.5.1 Federal LORS

4.11.5.1.1 Clean Water Act/Water Pollution Control Act

Discharges of wastewater and stormwater into surface and ground waters are regulated by SWRCB and RWQCBs under the Clean Water Act (CWA) of 1987 and the Water Pollution Control Act of 1972. Relevant NPDES permits for stormwater quality management are discussed in Water Resources Section 5.15.

4.11.5.1.2 NRCS (1983), National Engineering Handbook Sections 2 and 3

Sections 2 and 3 of the U.S. Department of Agriculture NRCS National Engineering Handbook provide standards for soil conservation during planning, design, and construction activities (NRCS 1983).

4.11.5.2 State LORS

4.11.5.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the state law governing the water quality of all state waters, including both surface water and groundwater. The SWRCB has the ultimate authority over water quality policy on a state-wide level, and the San Diego RWQCB regulates water quality in the project area. Water Resources Section 4.15 for further information.

4.11.5.2.2 Table 18-1-B of the Uniform Building Code (International Code Council, 1994)

Table 18-1-B of the Uniform Building Code (1994) defines the criteria for classifying expansive soils based on the expansion index.

4.11.5.3 Local LORS

4.11.5.3.1 San Juan Capistrano Municipal Code

The City adopted, with amendments, and enforces the 2016 edition of the CBC as published by the International Code Council. Chapter 2, Building Code, of Title 8, of the City's Municipal Code is the City's Building Code. The purpose of a building code is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures within the City. Building Code provisions apply to the construction, alteration, moving, demolition, repair, and use of any building or structure within the City.

4.11.6 Agencies and Agency Contacts

Applicable permits and agency contacts for soils are shown in Table 4.11-3. Building and grading permits from the City of San Juan Capistrano Building Division would be superseded by CEC approval of the Project under the opt-in program.

Table 4.11-3. Permits and Agency Contacts

Permit or Approval	Agency Contact	Applicability
City of San Juan Capistrano Grading and Building Permit*	City of San Juan Capistrano Public Works and Engineering Department 30448 Rancho Viejo Road San Juan Capistrano, CA 92675 (949) 443-6337	Building and Grading Permits
NPDES –Construction General Permit	Submit online using Stormwater Multiple Application and Report Tracking System (SMARTS) https://smarts.waterboards.ca.gov	Submit Notice of Intent for coverage under the statewide permit at least 30 days prior to construction.

Note:
* Building and grading permits from the City of San Juan Capistrano Building Division would be superseded by CEC approval of the Project under the opt-in program.

4.11.7 Permits and Permit Schedule

The NPDES permit is evaluated in Section 4.15, Water Resources.

4.11.8 References

Department of Conservation (DOC). 2022. California Important Farmland Finder. Available online: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed March 6, 2023.

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Natural Resources Conservation Service (NRCS), United States Department of Agriculture. 2021a. Web Soil Survey. Available online: http://websoilsurvey.nrcs.usda.gov/. Accessed March 6, 2023.

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State Water Resources Control Board (SWRCB). 2021. GeoTracker database. Available online: http://geotracher.waterboards.ca.gov/. Accessed March 9, 2023.

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- Project Site
- Project Site 1-mi Buffer
- Offsite Access Road
- Transmission Line
- New/Replacement Pole

Soils

- 100: ALO CLAY, 9 TO 15 PERCENT SLOPES
- 101: ALO CLAY, 15 TO 30 PERCENT SLOPES
- 102: ALO CLAY, 30 TO 50 PERCENT SLOPES
- 126: BOSANKO CLAY, 9 TO 15 PERCENT SLOPES
- 127: BOSANKO CLAY, 15 TO 30 PERCENT SLOPES
- 128: BOSANKO CLAY, 30 TO 50 PERCENT SLOPES
- 131: BOTELLA LOAM, 2 TO 9 PERCENT SLOPES
- 132: BOTELLA CLAY LOAM, 2 TO 9 PERCENT SLOPES
- 133: BOTELLA CLAY LOAM, 9 TO 15 PERCENT SLOPES
- 134: CALLEGUAS CLAY LOAM, 50 TO 75 PERCENT SLOPES, ERODED
- 135: CAPISTRANO SANDY LOAM, 2 TO 9 PERCENT SLOPES
- 142: CIENEBA SANDY LOAM, 30 TO 75 PERCENT SLOPES, ERODED
- 146: CORRALITOS LOAMY SAND
- 147: CORRALITOS LOAMY SAND, MODERATELY FINE SUBSTRATUM
- 149: CROPLEY CLAY, 2 TO 9 PERCENT SLOPES
- 170: MODJESKA GRAVELLY LOAM, 9 TO 15 PERCENT SLOPES
- 173: MYFORD SANDY LOAM, 2 TO 9 PERCENT SLOPES
- 175: MYFORD SANDY LOAM, 9 TO 15 PERCENT SLOPES
- 176: MYFORD SANDY LOAM, 15 TO 30 PERCENT SLOPES
- 177: MYFORD SANDY LOAM, 9 TO 30 PERCENT SLOPES, ERODED
- 179: MYFORD SANDY LOAM, THICK SURFACE, 2 TO 9 PERCENT SLOPES
- 185: PITS
- 191: RIVERWASH
- 197: SOBOBA GRAVELLY LOAMY SAND, 0 TO 5 PERCENT SLOPES
- 198: SOBOBA COBBLY LOAMY SAND, 0 TO 15 PERCENT SLOPES
- 206: SORRENTO LOAM, 0 TO 2 PERCENT SLOPES
- 207: SORRENTO LOAM, 2 TO 9 PERCENT SLOPES
- 208: SORRENTO CLAY LOAM, 0 TO 2 PERCENT SLOPES
- 209: SORRENTO CLAY LOAM, 2 TO 9 PERCENT SLOPES
- 224: YORBA COBBLY SANDY LOAM, 9 TO 30 PERCENT SLOPES
- 226: YORBA COBBLY SANDY LOAM, 30 TO 50 PERCENT SLOPES
- 227: WATER

SOURCE: USGS National Map 2023; USGS SSURGO 2023

DUDEK

0 1,000 2,000 Feet

FIGURE 4.11-1

Soils

Compass Energy Storage Project

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